



THE SCHOOL OF MEDICINE

Department of Bacteriology

7494 F 12

October 23, 1940

Dr. Michael Heidelberger
College of Physicians and Surgeons,
New York City

Dear Dr. Heidelberger:

I wonder if you would be so kind as to send J.W. Williams of the Department of Chemistry, University of Wisconsin, a reprint of your Bact. Rev. 3 49 (1939) article and also a reprint of your paper with Kendall on quantitative precipitin reaction with pneumococcus polysaccharides. They are continuing the digestion studies which I recently spoke to you about and wish to analyse their preparations quantitatively for antibody content and A/S ratio. I expect to do some of this for them but they wish to try it themselves.

I read Linus Paulings' recent paper with great interest. It seems to me, however, that a number of his assumptions are invalidated by some of our recent work along with Pope's etc. In particular, we can state definitely that the reactive sites are not on the ends of the molecule in either diphtheria antitoxin or pneumococcus antibody, at least not on both ends. Moreover, in the case of antitoxin the reacting sites are less stable-to-susceptible to heat denaturation than are other localities. I am becoming most enthusiastic about the enzyme method of locating the position of reactive groups on different kinds of antibody molecules. There are a number of other little things about the Pauling theory that I wonder about. For example, he states that antigen containing weak groups will be a good one whereas one containing many strong groups will be poor. If this is the case, why is diphtheria toxin an excellent antigen in the horse and a very poor one in the rabbit whereas the reverse appears to be the case with egg albumin?

I am taking the liberty of sending you copies of two manuscripts dealing with peptic digestion of antibodies. The one on antitoxin was presented last June at the Colloid Symposium and is in press in J. Phys. Chem. The other is a progress report of my summer's work sent to Williams a few weeks ago. It contains a crude picture of the structure of horse pneumococcus antibody as I see it. Will you please return the manuscripts when you are through with them.

Probably my criticisms of the Pauling theory are but a few inconsequential details. I would like to know what you think. I thought I might write him since he evidently knew nothing of the enzyme work.




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Parenthetically, the recent paper by Fell, Coghill and Stern in J. Immunol. is my idea of complete confusion. Except in one case I do not think more than 8% antibody was present in any of their preparations.

Sincerely yours,


A.M. Pappenheimer Jr.